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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/463,527	01/25/2000	GERNOT VON DER STRATEN	P99.1864	6446

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EXAMINER
ROBUSTELLI, MICHAEL E

ART UNIT	PAPER NUMBER
2697	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/463,527	VON DER STRATEN, GERNOT	
	Examiner	Art Unit	
	Michael E Robustelli	2697	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *17-32* is/are rejected.

7)☒ Claim(s) *17-18 and 28* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

Claim Objections

1. Claims 17-18 and 28 are objected to because of the following informalities: claim 17 and 20 recite "a predetermined error checking method," and claim 18 recites "said error checking method." It is recommended that the applicant amend the claim to replace "method" with "Technique." The use of "method" in the claim language implies the existence of steps or processes to carry out the said "predetermined error checking method," when there are in fact, none in the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 17-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

-The language of claims 17 and 28 makes it impossible to decipher what the applicant views as the invention. It is unclear when and where the said generating of frames is taking place. It is also unclear which receivers are being referred to at what times, and further which destination-addresses/connection-identifiers correspond with

which receivers. Therefore, claims 17 and 28 need to be amended to make the stated relationships clearer. There exist through out the claims further examples of unclear and incorrect language that requires amending.

-Claim 26 recites, "Said second revaluation memory for assisting in allocating said new connection identifier to said destination address." It is unclear what this means. Amendment is required. For examination purposes it will be interpreted as meaning the second revaluation memory will be for assisting in allocating the new connection identifier to packets belonging to the frame of the packet containing the destination address (i.e. of the original connection identifier).

-Claim 31 recites, "a second revaluation memory for assisting in allocation said new connection identifiers to at least one destination address." It is unclear what this means. Amendment is required. For examination purposes it will be interpreted as meaning allocating the new connection identifier to packets belonging the data frame containing a packet with the destination address.

-Claim 27 recites the limitation "said second revaluation memory" on line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

-Claim 32 recites the limitation "said second revaluation memory" on line 2 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 17, 22 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acharya et al. (U.S. Patent No. 5,903,559) in view of Burwell et al. (U.S. Patent No. 5,818,842).

-Regarding claims 17 and 22, Acharya teaches of a communications network employing a number of data frames ("IP packet," Col. 7, lines 33-35) defined according to a first protocol ("IP," see Title). Though Acharya does not explicitly show the data frames containing a destination address identifying a receiver of the data frames and message data, it is inherent in the art that an IP packet contain a destination address (IP address) identifying a receiver. Acharya further teaches of the network being an IP-over-ATM network, and it is therefore inherent that the network generates a number of data packets according to a second protocol ("ATM Cell," see title) for transmission from the data frame. Acharya further teaches of the data packets defined according to a second protocol (ATM, Col. 6, lines 65-67) including a connection identifier ("VC," Col. 6, lines 65-67) identifying a receiver ("first ATM switch," Col. 7, lines 28-31). Acharya further

teaches of transmitting the data packets over the network (Col. 7, lines 28-31) and determining a new connection identifier, though Acharya fails to explicitly show this new connection identifier being based on the destination address (IP address) read from a data packet containing a destination address, it is inherent in the design that the IP router do this (Col. 7, lines 31-38). Acharya further teaches of generating a number of new data packets from the received data packets, where the new data packets contain the new connection identifier (VP/VC; Col. 7, lines 39-45). Acharya further teaches of transmitting the new data packets of the data frame to the receiver (Col. 7, lines 39-51). Acharya further teaches of implementing the AAL ¾ and 5 standards (Fig. 1; Col. 16, lines 3-5) which, as is known in the art, includes segmentation and reassembly of the ATM cells into an AAL frame to which a forward error checking mechanism CRC is appended. Since Acharya teaches that the intermediate switches do not perform segmentation and reassembly processes, Acharya therefore fails to teach of checking the message data of the data frame for transmission errors according to a predetermined error checking method by comparing a reference data having a rated value and contained in the frame to the message data, prior to transmitting to a new receiver.

Burwell teaches of an IP-over-ATM (Col. 8, lines 52-67) network. Burwell further teaches of performing ATM layer segmentation and reassembly and AAL5 functions at the receiving switch ("Ridge," Col. 8, lines 52-67) prior to transmission of the new data packets to the new receiver (Col. 3, lines 29-45, and 55 – Col. 4, line 35; Col. 4, lines 44-63). Burwell further teaches of checking the message data of the data frame for transmission errors according to a predetermined error checking method by

comparing a reference data having a rated value and contained in the frame to the message data, prior to transmitting to a new receiver (Col. 14, lines 43-53).

At the time the invention was made it would have been obvious to one of ordinary skill in the art to check the data frame at the first receiver for errors so that corrupted data could be identified. One of ordinary skill in the art would have been motivated to do this because it is advantageous to prevent the transmission of corrupted data through the system since the data is not viable. Elimination of this data would increase throughput and efficiency.

-Regarding claims 18, Burwell further teaches of modifying the network layer payload header of the packet by decrementing the TTL field (hop-count), and further adjusting the "checksum field" (CRC) to compensate (Col. 10, lines 59-62; Col. 14, lines 43-53). In IP-over-ATM the IP packets are encapsulated in the message portion of the AAL5 frame, which is further segmented into ATM cells for transmission onto the ATM network. Modification to the header of the IP packet would constitute a modification to the message of the AAL 5 frame, which thus would require modification to the checksum associated with the frame.

At the time the invention was made it would have been obvious to one of ordinary skill in the art to modify a portion of the message data at the receiver, and to generate a new reference data for the data frame. One of ordinary skill in the art would have been motivated to do this so that the ATM switch is operable to perform network layer (IP) operations on IP-over-ATM data, such as adjusting TTL (hop-count) fields.

-Regarding claim 19, Burwell further teaches that the message is modified to contain a counter value dependant on prior transmission ("TTL," Col. 10, lines 59-62; Col. 14, lines 43-63).

-Regarding claim 21, Acharya further teaches that the generation of new packets occurs contemporaneously with the receipt of the data packets at the receiver (Col. 7, lines 36-41 and 45-50).

-Regarding claim 23, though Acharya fails to explicitly show a first revaluation for storing an entry, assisting in recognizing the data packet containing the destination address, and a connection identifier of the data packet of the data frame containing the destination address it is inherent in the design. For the ATM switch disclosed by Acharya to be operable it would need to be able to recognize the arrival at the switch of the cell containing the destination address of the packet, so that it could be directed to the IP router (Col. 7, lines 31-35). Furthermore, for the ATM switch disclosed by Acharya to be operable to convert to a switched data mode to switch subsequent cells belonging to the IP packet arriving on that VP/VC it would need to store the connection identifier of the packet of the frame containing the destination address so that subsequent packets arriving on that connection could be associated with the same new connection identifier, and bypass the IP-router (Col. 7, lines 59-63).

-Regarding claim 26, though Acharya fails to explicitly show a second revaluation memory for assisting in allocating the new connection identifier to packets belonging to the frame of the packet containing the destination address (i.e. of the original connection identifier) it is inherent in the design. By bypassing the IP router, the ATM switch must contain a memory for storing the resulting new connection identifier obtained by the IP

router, and for associating it with the arriving cells that belong to the frame of the packet containing the destination address. These arriving cells are recognized by their connection identifiers, which are to be replaced by their associated new connection identifier obtained from the second revaluation memory (Col. 7, lines 45-51 and 60-65).

-Regarding claim 27, though Acharya does not explicitly show at least one of the first and second revaluation memories being an associative memory, it is inherent in the design. When the cut-through path is established and the first ATM switch is operating in "switched data mode" the "VP/VC table" in the ATM switch is "completed." When this operation is complete, for each arriving cell's connection identifier the memory will associate with a new connection identifier (Col. 7, lines 45-51 and 60-65).

-Regarding claim 28, Acharya teaches of a switching unit (520 of Fig. 5; Col. 7, lines 5-9), employing a number of data frames ("IP packet," Col. 7, lines 33-35) defined according to a first protocol ("IP," see Title). Though Acharya does not explicitly show the data frames containing a destination address identifying a receiver of the data frames and message data, it is inherent in the art that an IP packet contain a destination address (IP address) identifying a receiver. Acharya further teaches of the network being an IP-over-ATM network, and it is therefore inherent that the network generates a number of data packets according to a second protocol ("ATM Cell," see title) for transmission from the data frame. Acharya further teaches of the data packets defined according to a second protocol (ATM, Col. 6, lines 65-67) including a connection identifier ("VC," Col. 6, lines 65-67) identifying a receiver ("first ATM switch," Col. 7, lines 28-31). Acharya further teaches of receiver (520 of Fig. 5; Col. 7, lines 5-9) operable to receive transmitted data packets over the network (Col. 7, lines 28-31) and determining a new connection

identifier, though Acharya fails to explicitly show a the new connection identifier being based on the destination address (IP address) read from a data packet containing a destination address, it is inherent in the design that the IP router do this (Col. 7, lines 31-38). Acharya further teaches of a processing unit ("IP router" and "ATM switch," Col. 7, lines 32-41) for obtaining a new connection identifier and generating a number of new data packets from the received data packets, where the new data packets contain the new connection identifier (VP/VC; Col. 7, lines 39-45). Acharya further teaches of transmitting the new data packets of the data frame to the receiver (Col. 7, lines 39-51). Acharya further teaches of implementing the AAL ¾ and 5 standards (Fig. 1; Col. 16, lines 3-5) which, as is known in the art, includes segmentation and reassembly of the ATM cells into an AAL frame to which a forward error checking mechanism CRC is appended. Since Acharya teaches that the intermediate switches do not perform segmentation and reassembly processes, Acharya therefore fails to teach of an error checking unit for checking the message data of the data frame for transmission errors according to a predetermined error checking method by comparing a reference data having a rated value and contained in the frame to the message data, prior to transmitting to a new receiver.

Burwell teaches of an IP-over-ATM (Col. 8, lines 52-67) network. Burwell further teaches of performing ATM layer segmentation and reassembly and AAL5 functions at the receiving switch ("Ridge," Col. 8, lines 52-67) prior to transmission of the new data packets to the new receiver (Col. 3, lines 29-45, and 55 – Col. 4, line 35; Col. 4, lines 44-63). Burwell further teaches of checking the message data of the data frame for transmission errors according to a predetermined error checking method by

comparing a reference data having a rated value and contained in the frame to the message data, prior to transmitting to a new receiver (Col. 14, lines 43-53).

At the time the invention was made it would have been obvious to one of ordinary skill in the art to check the data frame at the first receiver for errors so that corrupted data could be identified. One of ordinary skill in the art would have been motivated to do this because it is advantageous to prevent the transmission of corrupted data through the system since the data is not viable. Elimination of this data would increase throughput and efficiency.

-Regarding claim 29 and 32, though Acharya does not explicitly show a first revaluation memory for assisting in allocating the new connection identifier to at least one connection identifier of a received data packet, it is inherent in the design. It is further inherent that the first revaluation memory is an associative memory. When the cut-through path is established and the first ATM switch is operating in "switched data mode" the "VP/VC table" in the ATM switch is "completed." When this operation is complete, for each arriving cell's connection identifier the memory will associate with a new connection identifier (Col. 7, lines 45-51 and 60-65).

-Regarding claim 31, Acharya further teaches that packets arriving under unknown VCs are forwarded to the IP router, which facilitates the routing of the packet to its final destination by means of generating a new connection identifier to transmit the packet with to its next hop. Though Acharya does not explicitly state that the IP router contains a revaluation memory it is inherent in the design that it contain a table (memory) of destination addresses (IP address).

6. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Acharya et al. (U.S. Patent No. 5,903,559) in view of Burwell et al. (U.S. Patent No. 5,818,842), and in further view of Rostoker et al. (U.S. Patent No. 5,802,287).

-Regarding claim 20, Acharya and Burwell as discussed with the rejection of claim 18 above, differ form claim 18, in that they fail to explicitly teach that the checking of the message data for transmission errors and the generating of new reference data occur contemporaneously with generating the new data packets of the data frame.

Rostoker teaches of generating a new calculated reference data with the arrival of each cell. Upon receiving the last cell the calculated reference data is compared with the transmitted reference data contained in the last cell. Therefore the reception of cells is immediately followed by the generation of a new calculated reference data.

At the time the invention was made it would have been obvious to one of ordinary skill in the art to generate a new reference data simultaneously with the generation of new data packets for the data frame because it would not be possible to compare the reference data received in the last cell with the message of the data packets that have already been altered. One of ordinary skill in the art would have been motivated to apply the method of Rostoker so that one could continue to use the error checking reference data.

7. Claims 24-25 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Acharya et al. (U.S. Patent No. 5,903,559) in view of Burwell et al. (U.S. Patent No. 5,818,842), and in further view of Acharya et al. (U.S. Patent No. 6,343,326).

-Regarding claim 24, Acharya and Burwell as discussed with the rejection of claim 23 above, differ from claim 24, in that they fail to explicitly teach of after receiving

the data packet of the frame having the destination address, overwriting the entry in the first revaluation memory with the new connection identifier, and after receiving the last data packet of the data frame overwriting the connection identifier stored in the memory with the entry.

Acharya (U.S. Patent No. 6,343,326) teaches of after receiving the data packet of the frame having the destination address, overwriting the entry in the first revaluation memory with the new connection identifier, and after receiving the last data packet of the data frame overwriting the connection identifier stored in the memory with the entry (Fig. 1; Col. 5, lines 1-27; Col. 6, line 64 – Col. 7, line 50). The system taught by Acharya in Patent No. 6,343,326, which is essentially identical to that of Acharya Patent No. 5,903,559, explicitly teaches the operation of the ATM switch (of both patents) with respect to the handling of memory tables for performing cut-through switching.

-Regarding claim 25, Acharya (U.S. Patent No. 6,343,326) further teaches that the new connection identifiers for data packets of the data frame received after the data packet containing the destination address are identified with assistance of the new connection identifier stored in the first revaluation memory (Fig. 1; Col. 6, lines 42-63).

-Regarding claim 30 Acharya and Burwell as discussed with the rejection of claim 29 above, differ from claim 30 in that they fail to explicitly teach of the first revaluation memory comprising an entry having a predetermined value identifying connection identifiers of received data packets for which new connection identifiers must still be generated.

Acharya (U.S. Patent No. 6,343,326) teaches of an entry in a routing table that associates unknown connection identifiers with connection to an IP router (Col. 6, lines

51-56). This is performed so that packets arriving though new connections can have new connection identifiers generated for them (Fig. 1; Col. 6, lines 35-63). Therefore Acharya teaches of the first revaluation memory comprising an entry having a predetermined value identifying connection identifiers of received data packets for which new connection identifiers must still be generated.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

-Dommety (U.S. Patent No. 6,151,319): Teaches of an IP-over-ATM network that employs cut-through routing.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael E Robustelli whose telephone number is 703-305-8326. The examiner can normally be reached on Monday- Friday, 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on 703-305-4798. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

Michael E. Robustelli
March 6, 2003

RICKY NGO
PRIMARY EXAMINER